Tetrachlorodibenzo-p-dioxin (TCDD)
CAS 1746-01-6

Current North Carolina AAL = 3.0 x 10^{-9} mg/m^3 (annual carcinogen)

AAL Documentation

Inhalation Unit Risk (IUR)[1] = 3.3 x 10^{-5} per pg/m^3

The Inhalation Unit Risk Factor was divided by 10 to compensate for animal to human extrapolation.

Modified IUR = $\frac{3.3 \times 10^{-5}}{10}$ = 3.3 x 10^{-6} per pg/m^3

TCDD is classified as a probable human carcinogen by EPA, Group B2. In accordance with North Carolina guidelines, a 1 in 100,000 risk estimate was used to derive the AAL.

Linear calculation = $\frac{1 \text{ pg}}{3.3.x\ 10^{-6} \text{ per pg/m}^3} = \frac{x}{1 \times 10^{-5}}$

$x = 3.0$ pg/m^3

AAL for TCDD[2] = 3.0 x 10^{-9} mg/m^3

Unit Risk Factors verified by EPA 8/5/91
Oral = 4.5 pg/L
Inhalation = 3.3 x 10^{-5} pg/m^3

This information has been reconstructed using the decision matrix established by the North Carolina Academy of Sciences Air Toxics Panel, September, 1986.

[1] Source: EPA Health Assessment Document for Polychlorinated Dibenzo-P-Dioxins (1985), EPA/600/8-84/014F. The Inhalation Unit Risk (IUR) factor for TCDD was derived from the geometric mean of slope estimates from two animal feeding carcinogenicity studies: Kociba et al (1978) and NTP (1980). Route-to-route extrapolation calculations were conducted to derive the IUR of 3.3 x 10^{-5} $(pg/m^3)^{-1}$.
[2] 1 pg/m^3 = 10^{-9} mg/m^3

Final version- June 2013 (CMP)